

## CLAIMS

1. A process of producing a solar battery module including plural solar battery cells sealed by a resin between a transparent panel of the light reception surface side and a back face panel, which is characterized by arranging plural solar battery cells at a prescribed interval and mutually connecting them to each other by a conductor; arranging a first sealing resin sheet substantially covering the entire surface of the transparent panel of the light reception surface side between the transparent panel of the light reception surface side and the solar battery cells; arranging a second sealing resin sheet substantially covering the entire surface of the back face panel between the back face panel and the solar battery cells; arranging sealing resin sheet pieces having a thickness thicker than that of the solar battery cells at a space between the solar battery cells so as to be sandwiched by the first sealing resin sheet and the second sealing resin sheet; discharging air between the transparent panel of the light reception surface side and the back face panel; and heating the resin for melting and then cooling down it for sealing.

2. The process of producing a solar battery module according to claim 1, wherein the thickness of the sealing resin sheet pieces is thicker than the sum total value of the

thickness of the solar battery cells and the thickness of the conductor.

3. The process of producing a solar battery module according to claim 1 or 2, wherein the thickness of the sealing resin sheet pieces is at least 0.3 mm thicker than the thickness of the solar battery cells.

4. The process of producing a solar battery module according to any one of claims 1 to 3, wherein the width of the sealing resin sheet pieces is narrower than the width of the space.

5. The process of producing a solar battery module according to claim 4, wherein the width of the sealing resin sheet pieces is from 0.1 to 0.95 times the width of the space.

6. The process of producing a solar battery module according to any one of claims 1 to 5, wherein a space is arranged between the sealing resin sheet pieces, and the internal air is discharged therethrough.

7. The process of producing a solar battery module according to any one of claims 1 to 6, wherein the sealing resin sheets are made of at least one resin selected from the group consisting of an ethylene-vinyl acetate copolymer, polyvinyl butyral, and polyurethane.

8. The process of producing a solar battery module according to any one of claims 1 to 7, wherein the sealing resin sheets are made of a crosslinkable thermoplastic resin; and

in sealing in a sealing treatment vessel, the sealing operation including respective steps of a step of reducing the pressure in the sealing treatment vessel at a temperature at which the thermoplastic resin is not melted (step 1), a step of raising the temperature to the vicinity of or higher than the melting point of the thermoplastic resin in the reduced-pressure state (step 2), a step of raising the pressure in the sealing treatment vessel (step 3), a step of raising the temperature to a temperature range where a crosslinking reaction proceeds, thereby proceeding with the crosslinking reaction (step 4), and a step of performing cooling (step 5) is carried out.

9. A process of producing a solar battery module including a solar battery cell sealed by a resin between a transparent panel of the light reception surface side and a back face panel, which is characterized in that the sealing resin is made of a crosslinkable thermoplastic resin, a first sealing resin sheet substantially covering the entire surface of the transparent panel of the light reception surface side is arranged between the transparent panel of the light reception surface side and the solar battery cell, a second sealing resin sheet substantially covering the entire surface of the back face panel is arranged between the back face panel and the solar battery cell, the assembly is introduced into a sealing treatment vessel, and the sealing operation including respective steps of a step of reducing the pressure

in the sealing treatment vessel at a temperature at which the thermoplastic resin is not melted (step 1); a step in which the temperature is raised to the vicinity of or higher than the melting point of the thermoplastic resin in the reduced-pressure state (step 2); a step in which the pressure in the sealing treatment vessel is raised (step 3); a step in which the temperature is raised to a temperature range where a crosslinking reaction proceeds, thereby proceeding with the crosslinking reaction (step 4); and a step in which cooling is performed (step 5) is carried out.

10. The process of producing a solar battery module according to claim 9, wherein in the step 1, the pressure is reduced to 0.01 MPa or lower.

11. The process of producing a solar battery module according to claim 9 or 10, wherein when the melting point of the thermoplastic resin is defined as  $T_m$ , the temperature as reached in the temperature-rising operation of the step 2 is  $(T_m - 20)^{\circ}\text{C}$  or higher and  $(T_m + 50)^{\circ}\text{C}$  or lower.

12. The process of producing a solar battery module according to any one of claims 9 to 11, wherein in the step 3, the temperature at which the pressure is raised is  $120^{\circ}\text{C}$  or lower.

13. The process of producing a solar battery module according to any one of claims 9 to 12, wherein in the step 3, the temperature rising is simultaneously carried out while

raising the pressure in the sealing treatment vessel.

14. The process of producing a solar battery module according to claim 13, wherein in the step 3, a ratio of the pressure-rising rate (MPa/min) to the temperature-rising rate ( $^{\circ}\text{C}/\text{min}$ ) is from 0.001 to 0.1 (MPa/ $^{\circ}\text{C}$ ).

15. The process of producing a solar battery module according to any one of claims 9 to 14, wherein in the step 3, the pressure in the sealing treatment vessel is raised, and cooling is then once performed; and in the step 4, the temperature is raised to a temperature range where the crosslinking reaction proceeds.

16. The process of producing a solar battery module according to any one of claims 9 to 15, wherein in the step 4, the crosslinking reaction is made to proceed while keeping the pressure in the sealing treatment vessel at 0.05 MPa or more and the atmospheric pressure or lower.

17. The process of producing a solar battery module according to any one of claims 9 to 16, wherein the solar battery module is a solar battery module including plural solar battery cells sealed by a resin, and the plural solar battery cells are arranged at a prescribed interval and mutually connected to each other by a conductor.

18. The process of producing a solar battery module according to any one of claims 9 to 17, wherein the thermoplastic resin is at least one resin selected from the

group consisting of an ethylene-vinyl acetate copolymer, polyvinyl butyral, and polyurethane.

19. The process of producing a solar battery module according to any one of claims 1 to 18, wherein at least one of the transparent panel of the light reception surface side and the back face panel is made of a tempered glass or a double strength glass.

20. The process of producing a solar battery module according to any one of claims 1 to 19, wherein the produced solar battery module is a daylighting type solar battery module.